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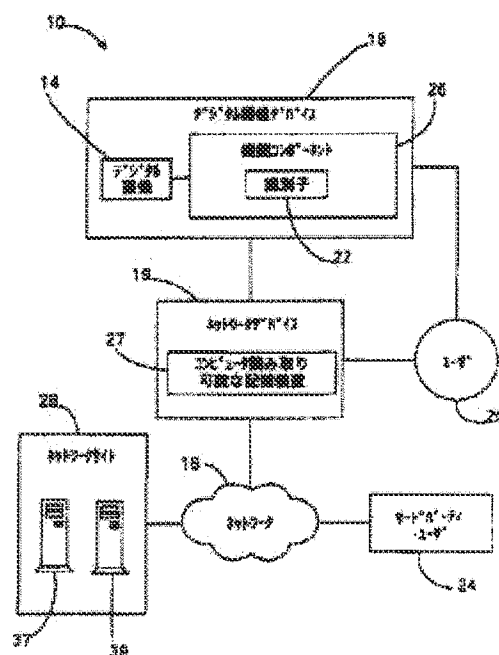
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(54) METHOD AND APPARATUS FOR IDENTIFYING DIGITAL IMAGE AND FOR ACCESSING DIGITAL IMAGE VIA NETWORK

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a method and an apparatus for identifying a digital image and for accessing the image via a network.

SOLUTION: This method 12 includes a step for obtaining a digital image 14 and a step for automatically allocating an identifier 22 capable accessing of the digital image 14 via network 16 to the digital image 14.



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CLAIMS

[Claim(s)]

[Claim 1] A method containing a step which acquires a digital image, and a step which assigns an identifier which makes it possible to access said digital image via a network automatically to said digital image.

[Claim 2] A method according to claim 1 by which a step which accesses said digital image via said network being further included using said identifier.

[Claim 3] A method according to claim 1 by which a step which specifies form of said digital image, and a step which formats said digital image so that said digital image may be said form, when said digital image is accessed via said network being included further.

[Claim 4] A method according to claim 1, wherein said at least a part of identifier comprises said Internet protocol address, including further a step which chooses a domain name, and a step which changes said domain name into an Internet protocol address.

[Claim 5] A method according to claim 1, wherein said at least a part of identifier is a thing based on information which a user provided.

[Claim 6] (A) A storage in which one or more computer reading is possible, and (B) It is a program code which is stored in a storage in which said one or more computer reading is possible and in which computer reading is possible, (a) A program code which acquires a digital image, and (b) A program code which assigns an identifier which makes it possible to access said digital image via a network automatically to said digital image, A device provided with a program code in which ***** computer reading is possible.

[Claim 7] The device according to claim 6, wherein said program code which assigns an identifier automatically to said digital image contains a program code which assigns a uniform resource locator of an eternal meaning to said digital image.

[Claim 8] The device according to claim 6, wherein a program code in which said computer reading is possible contains further a program code for accessing said digital image via said

network using said identifier.

[Claim 9]A program code in which said computer reading is possible, A program code which specifies form of said digital image, and when said digital image is accessed via said network, The device according to claim 6 by which a program code which formats said digital image being further included so that said digital image may be said form.

[Claim 10]The device according to claim 6, wherein a program code in which said computer reading is possible contains further a program code for carrying out tracking of said digital image.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the method and device for identifying a digital image via a network and accessing the picture in more detail, about a digital image, comprehensively.

[0002]

[Description of the Prior Art]The Internet developed into the medium used widely, in order to communicate and share the others, information, and visual images. Comparatively cheap digital imaging devices, such as a digital camera and a scanner, actually made it convenient to share a picture via the Internet increasingly. For example, what is necessary is just to transmit the E-mail which attached the digital photograph concerned to the E-mail first, and then attached the digital image concerned to a friend or a relative, in order for new parents to share their digital photograph or picture of a newborn child with a friend or a relative. The addressee (there may be plurality) can see the newborn child's digital image, if an E-mail is received. Or by putting the above-mentioned digital image on the Internet web page, new parents can make it possible to see a photograph, when a family and a friend visit the Internet web page concerned.

[0003]Although the ease which can share a digital image via the Internet raised the popularity of the digital imaging device clearly, a problem is not necessarily in sharing of the digital image through the Internet. For example, depending on the kind of file in which the resolution of a digital image and this were stored, the file size of a digital image may become very large. Such a big file can pose a problem, when sending to a certain kind of e-mail account. It is because many E-mail service providers have restricted the size of the e-mail account to provide (for example, account of Hotmail (hotmail) is restricted to 2 megabytes). As a result, the E-mail with which one or more digital images were attached may exceed restriction (there may be

plurality) of the account size of an e-mail account (it may be plural) that this is transmitted. When restriction of e-mail account size is exceeded depending on the specific E-mail service provider used, there is a possibility that an addressee's e-mail account (namely, "crash"), and operating may become impossible.

[0004]The file size accompanying a digital image may need to spend considerable time and throughput again, in order to share a digital image via the Internet. For example, in order to share a digital image via an E-mail, a user has to attach a digital image to the E-mail concerned first, before transmitting an E-mail. In order to share a digital image via the Internet web page, first, a user puts the digital image which it is going to share on the Internet web page, namely, has to upload it. Both the process of attaching a digital image to an E-mail, and the process of uploading a digital image to the Internet web page may require time. In which approach, after a user incorporates a digital image with a digital imaging device, a digital image cannot be shared comparatively immediately.

[0005]The option which shares a digital image via the Internet is uploading a digital image to the "digital photograph album" in which control of maintenance is carried out by one of various Internet services.

As for this, a user makes possible storing and the things (for example, an inspection, edit, a share, etc.) to manage for his digital image in a digital photograph album.

Each Internet Service Provider usually provides the device original with the digital photograph album of his company.

Although the sharing method of the accessing method to a digital photograph album, the contents of the digital photograph album, and the digital image in a digital photograph album, etc. are mentioned to this, it is not limited to these.

However, the functionality of such a digital photograph album is greatly spoiled by lack of unity (uniformity). For example, a user spends considerable time and labor first, before getting access eventually to the digital image accommodated in the digital photograph album. It is required for the functions (for example, an inspection, printing, edit, etc.) of a digital photograph album in which the digital image is stored to get used and to be familiar, and it obtains.

[0006]

[Problem(s) to be Solved by the Invention]Then, the purpose of this invention identifies a digital image via a network, and there is in providing the method and device for accessing the picture.

[0007]

[Means for Solving the Problem]A method by one embodiment of this invention is indicated here. This method is provided with the following.

A step which acquires a digital image.

A step which assigns an identifier automatically to the digital image concerned.

This identifier makes it possible to access the above-mentioned digital image via a network.

[0008]

[Embodiment of the Invention]The illustration embodiment of this invention is shown in attached Drawings.

[0009]In this Description, the digital image 14 is identified via the network 16, and the device 10 and the method 12 of using in order to access the picture (for example, record storage, storing, discernment, edit, a share, tracking (pursuit), etc.) are shown and explained. The device 10 is shown in drawing 1 and the method 12 is shown in drawing 2. If it says simply, this invention includes acquiring the digital image 14 and assigning the identifier 22 automatically to the above-mentioned digital image 14 so that the next can be accessed via the network 16 at the above-mentioned digital image 14 comprehensively.

[0010]One advantage realizable by one embodiment of this invention, It is that the user 20 can share the digital image 14 with the others (for example, third party user 24 grade) comparatively immediately, for example after acquiring the digital image 14 with the digital imaging devices (digital image capture device) (for example, a digital camera, a scanner, etc.) 18. More specifically, the functional component 26 of the device 10 can assign the identifier 22 comparatively immediately to the digital image 14, after acquiring the digital image 14 with the digital imaging device 18. In this case, in order to share the digital image 14, The user 20 should just only share the identifiers 22 (for example, URI, URL, etc.) with the third party user 24, Then, the third party user 24 can access the digital image 14 using the identifier (the device with which the digital image 14 is stored assuming that it is what is linked to the network 16) 22. The device with which the digital image 14 was actually stored as for the identifier 22. From (for example, the network device 19 and digital imaging device 18 grade). For example, although the user 20 is not performing the process that the time of uploading or transmitting the digital image 14 to the Internet web page, a digital photograph album, or an E-mail starts, The digital image 14 is shared with the third party user 24 via the network 16, or the third party user 24 is enabled to access the digital image 14. For example, the film development contractor (Internet film developer) on the Internet, Via the network 16 using the identifier 22 (for example, in order to develop and print the digital image 14 etc.) the digital image 14, It can acquire directly from the device with which the digital image 14 concerned was stored, and the necessity that the user 20 uploads the digital image 14 to the website of the film development contractor on the Internet by this can be abolished.

[0011]When how to assign an identifier is known (namely, when the user 20 concerned knows beforehand which identifier will be assigned to the user's 20 digital image), The user 20 can provide the third party user 24 with the identifier concerned, before a digital image is acquired thoroughly. By doing so, it enables the third party user 24 to peruse the digital image to which

the above-mentioned (the device with which the digital image is maintained assuming that it is what is linked to the network 16) identifier 22 was assigned in "real time." For example, the third party user 24 can peruse the digital image which the user 20 acquired on the day, and gets every night on it.

[0012]The arbitrary servers (web server etc.) linked to the network 16 have another advantage realizable by one embodiment of this invention in the ability to carry out the "host" (for example, detection (find), read-out (retrieve), a display, etc.) of the digital image 14. If it puts in another way, various time can be accessed from various places via the network 16 by giving a suitable demand to the digital image 14 using the network device linked to the network 16. By storing various identifiers assigned to the user's digital image in the files (simple text file based on markup languages, such as HTML, XML, or SGML, etc.) in which computer reading is possible, The file in which computer reading is possible can refer a user's digital image collection, or it can be linked from the file in which computer reading is possible. The identifier stored in the file and this in which computer reading is possible is sharable with the others after that, and provides how a user shares his digital image collection easy. Since the file in which computer reading is possible stores not the digital image itself but an identifier, it is comparatively small and it becomes easier to treat it than the file containing the digital image itself.

[0013]Advantage realizable by one embodiment of this invention, and also another, It is in making it possible to access the individual according to independence from other digital images which reside permanently on the network 16 at each of those digital images by assigning an identifier to each digital image which resides permanently on the network 16. For example, the user cannot access other digital images which were incorporated with the same digital imaging device 18 and which the functional component 26 assigned the identifier, but can also access ** individually via the network 16 at the digital image 14.

[0014]Assignment of the identifier to a digital image also makes tracking of a digital image possible. For example, access information about the digital image 14 (in access, the digital image 14.) (For example, an inspection, a copy, printing, etc.) The record including the information about the number of times carried out, the information about the identity of the user who accessed the digital image 14, the information about change made to the digital image 14, etc. can be held. By accessing this record, the user 20 can judge about whether the specific individual for example especially perused the digital image 14.

[0015]Advantage another again realizable by one embodiment of this invention and also By assigning the uniform resource identifier ("URI") to a digital image using the Internet protocol versions 6 ("IPv6"), it is in making it possible only and to suppose that it is eternal about IPv6 URI assigned to a digital image. For example, in one embodiment, URI can be saved, as long as the digital image concerned continues or exists. That is, while the digital image concerned

exists, IPv6 URI assigned to the digital image at the beginning is not changed, or is not assigned to other arbitrary digital images. It can even actually perform saving eternally URI assigned to a digital image and this as the cost accompanying storing of data continues decreasing. Anyway, arrangement and a share of a digital image can only pose a problem of markup languages, such as HTML, XML, or SGML, by giving permanent (permanent-by-photo) IPv6 URI to each digital image for every photograph.

[0016]One embodiment of this invention can also enable realization of a capital gain or a money profit (proprietary or monetary gains). For example, commercial service can collect a fee and can store a user's digital image.

[0017]There is further advantage realizable by one embodiment of this invention in making it possible to refer to a digital image by the object-oriented method via a network. That is, by treating as an object rather than treating a digital image as mere data, The support of the "method" (for example, size change of the digital image 14, printing of the digital image 14, rotation of the digital image 14, etc.) which may be used with the digital image 14, And the support of the "property" (for example, a file size, an incorporation day, final access, etc.) of the digital image 14 is enabled. For example, a user is enabled to specify the forms (for example, black and white, a low resolution, high resolution, the original version, a thumbnail indication, the latest version, etc.) of the digital image 14, The program code which formats the digital image 14 into the specification form concerned so that a user may be eventually provided with the digital image 14 in this specification form and in which computer reading is possible can be provided.

[0018]Since a part of the device 10 by one embodiment of this invention, method 12, its more important feature, and advantage were explained briefly, below, various embodiments of the device 10 and the method 12 are indicated more in details.

[0019]Drawing 1 identifies the digital image 14 via the network 16, and the picture is accessed. (For example, record storage, storing, discernment, edit, a share, tracking, etc.) In order to carry out, it is a high-level figure (high level diagram) showing the component of one embodiment of the device 10 which can be used. Although being used on the Internet is preferred as for this invention, it is understood that this invention is not strictly restricted to use on the Internet. That is, although it is preferred that they are a data link control protocol / Internet Protocol (TCP/IP) network as for the network 16, Although a Local Area Network (LAN), a Wide Area Network (WAN), a secure network, intranet, the Internet, its combination, etc. are included, they may be the arbitrary suitable networks (singular number or plurality) which are not limited to these.

[0020]The device 10 can be provided with the digital imaging device 18 which can be used in order that the user 20 may incorporate the digital image 14. the extensive digital imaging device (digital image capture device) which the digital imaging device 18 is known for this

industry now, or may be developed in the future -- ** may be included someday. For example, the digital imaging device 18 may contain a digital camera or a scanner.

[0021]In the embodiment shown and described into this Description, it is linked whether the digital imaging device 18 is related with the network 16 in operation by the network device 19. the network device 19 can be linked to the network 16 -- extensive. the system (a personal computer, a network server, a kiosk, a handheld computer device, an Internet site, and exclusive electronic equipment (e-enabled appliance).) which is known for this industry now or may be developed in the future Web TV or a TV with Internet functions, a web terminal, an Internet device (namely, an E-mail, an Internet access, or the device only for [other] a limited function), etc. may contain ** someday. the suitable means (for example, a modem, T-1, T-3, a cable, and a digital subscriber line (DSL).) by which the network device 19 is arbitrary It may be linked whether it is related with the network 16 in operation via the combination of other devices (for example, a router, a hub, etc.), such as infrared rays and BLUETOOTH (trademark), other networks (for example, LAN, WAN, intranet, etc.), and a network, etc.

[0022]However, the digital imaging device 18 should care about that it does not need to be linked to the network 16 by the network device 19. Instead, the digital imaging device 18, it is linked directly (namely, -- having no relay device (not shown) between the digital imaging device 18 and the network 16), or may be linked to the network 16 via one or more relay devices (personal computer etc.) at the network 16. The digital imaging devices 18 are actually wired connection, infrared connection, and a dialup connection (.). that is, a modem is used -- permanent connection (for example, a cable and a digital subscriber line (DSL).) Other arbitrary suitable means which are not limited to these although T-1 and T-3 are included, It may be linked to the network 16 via the combination of BLUETOOTH (trademark), a satellite and also other devices (for example, a router, a hub, etc.), other networks (for example, LAN, WAN, intranet, the Internet, etc.), and a network, etc.

[0023]There is never no necessity that the digital imaging device 118 is linked to the network 116 in the device 110 (refer to drawing 3) of an alternative embodiment explained still in detail below. Instead, the digital image 114 may be downloaded or transmitted to the network devices 119 (for example, personal computer etc.) from the digital imaging device 118. This network device 119 does not have to be carried out even if it is linked to the network 116,/or when the digital image 114 is acquired by this, and it is transmitted. However, in order to access the digital image 114 via the network 116, the network device 119 with which the digital image 114 is transmitted must be linked to the network 116. When similarly it is stored in the digital imaging device 118, without transmitting the digital image 14, in order to access the digital image 14 via the network 16, the digital imaging device 18 must be linked to the network 16 (refer to drawing 1).

[0024]In order to carry out various functional modes of this invention, the device 10 can be

further provided with the functional component 26. It is understood that the arbitrary suitable hardwares and/or software applications which perform each function can be used for the functional component 26. In one embodiment, the functional component 26 may contain the program code in which computer reading is possible, and hardwares (for example, Intel PENTIUM (registered trademark) processor etc.) required in order to perform this. The program code in which such computer reading is possible, The program code which enables it to access each digital image via the network 16 separately from other digital images which assigned the identifier by assigning the identifier of a meaning (only) to a digital image may be included. For example, the identifier 22 assigned to the digital image 14 can be used with a web browser, and the digital image 14 can be accessed via the network 16.

[0025]The program code which can constitute the functional component 26 and in which computer reading is possible is storable in the storage with which it was associated whether it resides in the digital imaging device 18 permanently and in which one or more computer reading is possible. Or the program code which constitutes a functional component and in which computer reading is possible, Other places on the network device 119 (refer to drawing 3), the primary server 37, the secondary server 39, and the network 16. It is storable in the storage with which it was associated whether it resides in (for example, another server) etc. or some of its combination permanently and in which one or more computer reading is possible. However, the program code in which computer reading is possible may contain the program code for performing one or more of the various steps of the method 12 shown in drawing 2 regardless of the permanent residence place.

[0026]In the embodiment shown and described into this Description, after the digital imaging device 18 incorporates the digital image 14, namely, acquires the functional component 26, it can assign the identifier 22 immediately automatically mostly at the digital image 14 (with namely, those without user intervention). In the device 110 (refer to drawing 3) of an alternative embodiment explained more below at details. It can avoid assigning the identifier 122 until the digital image 114 transmits or downloads from the digital imaging device 118 to the network device 119, for example because the functional component 126 resides permanently in the network device 119. In another alternative embodiment (not shown). The functional component does not need to assign the identifier 22 to the digital image 14 until the digital image 14 is transmitted to the network position (it may be plural) in which it resides in other places on the network 16 permanently, and this functional component resides permanently via the network 16.

[0027]The identifier 22 assigned to the digital image 14 can contain the identifiers (a uniform resource identifier ("URI"), a uniform resource locator ("URL"), etc.) of an eternal (that is, un-dynamic) meaning. globally, it is eternal, and URI identifies only the digital image 14 on the network 16 clearly, and URI assigned to the digital image 14 is fixed [a meaning and] (that is,

it does not change) -- it can be made like. If it has another way of speaking, the identifier 22 assigned to the digital image 14 is only all over the world, and it is preferred to have the identifier as the identifier 22 in which other digital images of which, device, file, etc. of the duration of the digital image 14 are the same. During the duration of the digital image 14, the identifier 22 does not change, while it had been fixed. The identifier 22 of a meaning (only) is eternally assigned to the digital image 14, and it can actually assign another digital image, a device, and a file never.

[0028]For example, in one embodiment, a web browser can detect the resource related with the URL concerned using this URL including URL, and, therefore, the identifier 22 can read the digital image 14. More specifically, URL can specify the protocols (for example, http, ftp, etc.) used when accessing the digital image 14, the server in which the digital image 14 resides permanently or the name of other devices, and the course to the digital image 14. According to specific application, a user inputs URL into the address field of a web browser, or a user can become ** as which URL is displayed as a hyperlink which can operate by click. Anyway, URL or other identifiers which are assigned to the digital image 14 enable it to access the digital image 14 via the network 16.

[0029]In order to assign an identifier to a digital image, the Internet protocol versions 6 ("IPv6") can be used for the functional component 26. If it says simply, IPv6 will be a next-generation protocol proposal of the Internet developed in order to solve shortage of the available IP address accompanying the Internet protocol versions 4 ("IPv4") used for one now. In IPv4, in order to identify uniquely the hosts (for example, computer etc.) connected to the Internet to other Internet hosts for the purpose of [by packet transfer] communication, a 32 bits (4 bytes) binary number is used. The IPv four address is expressed in the "quad with dot (dotted quad)" form (for example, 127.0.0.1st grade) which consists of a decimal value of 4 bytes divided by the period. Identifying 1 of the beginning of the IPv four address, 2, or 3 bytes of network to which the host is connected, the remaining bits identify the host itself. If all the 4 bytes 32 bits are doubled, about 2^{32} , i.e., about 4 billion host, can be expressed (some small ranges in a number group are not used). However, available IP addresses are insufficient by IPv4 with the spread of the Internet. The dynamic host composition protocol ("DHCP") is used with IPv4, When a host connects with a network, the network linked to the Internet makes it possible to assign the host concerned a temporary IP address automatically, and makes it possible to carry out the reuse of the IP address therefore, but. A chance of replacing IPv4 in the future when IPv6 is near still in addition is high. In contrast with IPv4, IPv6 makes it possible to express an address numerically as 6 sets instead of 4 sets of numbers. As a result, IPv6 increases 128 bits from 32 bits, and equips the network and system of an infinite number with an address space as a matter of fact (related with all the intention and purpose).

[0030]When using IPv6, the functional component 26 can assign an identifier including a

perfect physical IP address (namely, 6 sets of numbers showing an address), or name addresses (for example, www.hp.com etc.) to a digital image. Or using the version after IPv6 can also assign the identifier of other types to a digital image so that clearly [the person skilled in the art who understood instruction of this invention well].

[0031]The identifier assigned to a digital image can be selectively based on the information which the user 20 provided at least. The identifier assigned to a digital image by doing so can explain that "meaningful", i.e., a specific digital image. For example, the user 20 can choose domain names (for example, "douglasgennettenscamera1.com" etc.), and, subsequently to either of various domain name registration services, can register the domain name concerned. once a domain name is registered -- the domain name server or registration computer of the service -- temporary -- parking -- that is, it may be stored. The domain name concerned may be eventually changed into the Internet protocol address which identifies uniquely the host in whom it is the communication purpose and the user's 20 digital image will reside permanently to other Internet hosts. After all, at least a part of identifier assigned to each of the user's 20 digital image can include an Internet protocol address. For example, the identifier "douglasgennettenscamera1.com/digitalimage14" is assigned to the digital image 14, Then, an identifier can be assigned to the digital image following this in order (for example, "douglasgennettenscamera1.com/digitalimage15" etc.).

[0032]In another embodiment, assignment of an identifier can be selectively based on the digital imaging device 18 used in order to incorporate a digital image. For example, the digital imaging device 18 is related with the network 16 in operation, and may have an eternal physical IP address. In that case, at least a part can assign an identifier including the IP address of the digital imaging device 18 concerned to the digital image incorporated with this digital imaging device 18.

[0033]the IP address of the digital imaging device 18 -- or the part at least can contain the social security number of the serial number of the digital imaging device 18 concerned, or the user 20, i.e., a buyer, for example. Or for example, at least a part of IP address of the digital imaging device 18 can be based on the information which the user 20 provided. According to one embodiment, the user 20 can choose domain names (for example, "andygoriscamera1.com" etc.), and, subsequently to either of various domain name registration services, can register the domain name concerned. Selection and registration of a domain name can be performed by including the expense accompanying registration of a domain name in the purchase price at the time of the purchase of the digital imaging device 18. once a domain name is registered -- the domain name server or registration computer of the service -- temporary -- parking -- that is, it may be stored. The domain name concerned may be eventually changed into the Internet protocol address which identifies the above-mentioned digital imaging device 18 uniquely. After all, at least a part of identifier assigned to

each of the user's 20 digital image can include the Internet protocol address of the above-mentioned digital imaging device 18. For example, the identifier "andygoriscamera1.com/digitalimage14" is assigned to the digital image 14. Then, an identifier can be assigned to the digital image following this in order (for example, to a next digital image.). An identifier "andygoriscamera1.com/digitalimage15", "andygoriscamera1.com/digitalimage16", etc. can be assigned.

[0034]As mentioned above, the digital image which assigned the identifier by this invention may be maintained namely, stored via the network 16 so that it may be accessible. In one embodiment, the functional component 26 may contain further the program code which stores the above-mentioned digital image in the medium which is accommodated in the memory storage which was linked to the network 16, and in which one or more computer reading is possible, and in which one or more computer reading is possible. A digital image is storable in automatic (with namely, those without user intervention), hand control, or its combination. Preferably, the memory storage in which one or more above-mentioned computer reading is possible is linked to the network 16 always or eternally. Otherwise, when the device (it may be plural) with which the digital image was stored is not linked to the network 16, access to a digital image of a user may become impossible. However, the identifier 22 should care about that it may be used in order that the digital image 14 may access the digital image 14 via the network 16 regardless of the place stored namely, maintained eventually. For example, even if the digital image 14 is transmitted to the digital image 14 from the network position to which the identifier 22 was assigned, the identifier 22 may still be used in order to access the digital image 14 via the network 16.

[0035]In the embodiment shown and described into this Description, since a digital image is stored, a network or the Internet website 28 can be used. More specifically, the network site 28 may contain, the 1st server 37, i.e., a primary server, and the secondary server 39, i.e., a backup server. Or the network site concerned may contain servers (a partition server, a non-partition server, its combination, etc.) with preferred any number (namely, one or more).

[0036]The primary server 37 may contain the file server which may store or record keep two or more digital images containing the digital image 14. The primary server 37 can transmit the digital image 14 concerned, if a user (for example, the user 20, third party user 24 grade) advances the suitable demand which asks for the digital image 14. Or a digital image is storable in other places on the network site 28, other place (for example, network device 19 grade) on the network 16, its combination, etc.

[0037]When it returns to drawing 1, the secondary server 39 may contain the file server used since the backup copy of a digital image is stored. For example, since the backup copy of the digital image 14 of an original copy, i.e., an unedited version, is stored, the secondary server 39 may be used. Or the backup copy of a digital image is storable in other places on the

network site 28, other place (for example, network device 19 grade) on the network 16, its combination, etc.

[0038]This is not indispensable although being stored in read-only form is usually preferred as for each of the digital image of an original copy, i.e., an unedited version. Similarly, the backup copy of a digital image may also be stored in read-only form. However, when the original version and/or backup copy of a digital image are stored in read-only form. A user accesses the original version and/or backup copy of a digital image, The override functions (for example, password override etc.) which make it possible to carry out override (override) of the read-only form so that this can be corrected can be provided.

[0039]In order to save memory space, the digital image can store only limited time or a prescribed period. The period when each digital image is stored is specified by the user 20, or may be determined without user intervention, for example (for example, set up a priori in programmable code). As mere illustration, by one embodiment, the digital image 14 may be deleted, when access to the digital image 14 concerned is not required or charged more than five years. Or as mentioned above, someone cannot be concerned [access trial or] with whether it accessed or not, but can store the digital image 14 in the digital image 14 concerned eternally.

[0040]In addition to storing, i.e., maintenance, of a digital image, various identifiers assigned to a digital image can also be stored namely, maintained. For example, this identifier 22 after the functional component 26 assigns the identifier 22 to the digital image 14, the file (HyperText Markup Language ("HTML").) in which computer reading is possible It may be stored namely, saved at the text file based on an extensible markup language ("XML") or markup languages, such as a standard generalized markup language ("SGML"), etc. (arrangement). The file in which computer reading is possible is storable in the medium which is accommodated in the memory storage which was linked to the network 16, and in which one or more computer reading is possible and in which one or more computer reading is possible. For example, the file in which computer reading is possible is storable in the memory storage 27 which can computer read the network device 19, and the primary server 37 of the network site 28, and/or the secondary server 39. Or the file in which computer reading is possible is storable in other places on the network site 28, other place on the network 16, its combination, etc.

[0041]The file in which computer reading is possible can also contain the identifier assigned to other digital images other than the identifier 22 of the digital image 14. By storing two or more identifiers in the file in which computer reading is possible, the digital image related with the identifier concerned is easily sharable by sharing the file in which the computer reading concerned is possible, and the identifier stored in this. It is because this has the comparatively small file in which computer reading is especially possible. It is actually easier to treat the file containing an identifier and in which computer reading is possible small far than the file

containing the digital image itself. However, the method of accessing a digital image eventually should care about/or the file in which computer reading is possible being transmitted how, and being decided by whether it is received. For example, a digital image can be displayed on a display (not shown) as a thumbnail image, a full-size picture, etc., and can provide/or an identifier as a series of hyperlinks.

[0042]The functional component 26 may contain again the program code which refers to the digital image 14 via the network 16 by the object-oriented method (design fashion), i.e., an object oriented design form. If it puts in another way, the digital image 14 cannot be treated as data which only constitutes the digital image 14, but the functional component 26 can treat it as an object. Such object-oriented approach, The support of the "method" (for example, size change of the digital image 14, printing of the digital image 14, rotation of the digital image 14, etc.) which may be used with the digital image 14, The support of the "property" (for example, a file size, an incorporation day, final access, etc.) of the digital image 14 is enabled.

[0043]In one embodiment, the functional component 26, The program code which specifies the forms (for example, black and white, a low resolution, the original version, the latest version, a thumbnail image, a file format, etc.) of the digital image 14, The program code which formats the digital image 14 into the specification form concerned so that a user may be eventually provided with the digital image 14 in this specification form may be included. For example, the functional component 26 can recognize that the film development contractor on a printer or the Internet performed the access request to the digital image 14, Therefore, high resolution form is specified as the digital image 14, and next, according to this, the digital image 14 can be formatted, before the digital image 14 concerned is provided to the film development contractor on the printer which performed the access request, or the Internet.

[0044]The functional component 26 may contain the program code which enables a user to specify the form of the digital image 14 again. for example, a user -- the identifier 22 -- an extension (the case of a black and white version -- ".BW".) In the case of high resolution, it is possible to specify the form of the digital image 14 by adding ".bmp" etc. in the case of ".jpg" and bitmap file form in the case of ".HR" and a jpg file format, and it obtains to it. In one embodiment, the user can input the identifier 22 and the extension following this into the address field of a web browser. In another embodiment, the user can specify the form of the digital image 14 by choosing in the pull down menu of a web browser. Or other methods of specifying form are possible so that clearly [the person skilled in the art who understood instruction of this invention well].

[0045]The functional component 26 can contain further the program code which carries out tracking of the digital image 14. For example, The record including the access information (the information about the number of times that the digital image 14 was accessed, information about the identity of the user who accessed the digital image 14, information about change

made to the digital image 14, etc.) about the digital image 14 can be held. By accessing this record, the user 20 can judge whether the specific individual for example especially perused the digital image 14.

[0046]It is understood that the embodiment of drawing 1 is only illustration of the environment where this invention may be carried out. Other embodiments (for example, device 110 of the embodiment of drawing 3) are meant as what is within the limits of this invention. For example, the functional component 26 resides in other places permanently, and may be divided into/or a separate module, a routine, and/or a subroutine.

[0047]The device 10 assigns the identifier 22 to the digital image 14 in accordance with the method 12 shown in drawing 2, and it may be operated so that it may make it possible to access the digital image 14 via the network 16. The digital image 14 is acquired in the 1st step 30 of the method 12. In order to acquire the digital image 14, the user 20 can use the digital imaging device 18, for example. Or the digital image 14 may be read from other places on the network 16 (passing an E-mail etc.). The following step 32 contains various functional modes (feature) of this invention in the method from which the digital image 14 is acquired not related. In Step 32, more specifically, the digital image 14 may be stored so that it may become accessible via the network 16 (refer to Step 36). For example, the digital image 14 may be stored in other place on the 1st server 37 of the digital imaging device 18, the network device 19, and the network site 28 and/or the 2nd server 39, and the network 16, its combination, etc. Between the functional phases (functional phase) 32 of the method 12, the identifier 22 which may be used in order to access the digital image 14 concerned via the network 16 may be assigned to the digital image 14 (refer to Step 38). More specifically, the identifier 22 can provide the position or site on the networks (for example, detection, read-out, edit, a display, printing, a share, tracking, etc.) 16 which can access the digital image 14. After the digital image 14 is stored the identifier 22, while it is stored, it may be assigned to the digital image 14 even at a saying, before being stored early stage. However, if the identifier 22 will be assigned, it may be stored in the files (text file based on markup languages, such as HTML, XML, or SGML, etc.) in which computer reading is possible (refer to Step 40). Other various functions 41 may take place between the functional phases 32 of the method 12 so that it may explain still in detail below.

[0048]In Step 42 if it assumes that a user (for example, the user 20, third party user 24 grade) wants to access the digital image 14 here, the identifier 22 assigned to the digital image 14, It may be used in order to detect the digital image 14 on the network 16 (a position is found). Once the digital image 14 is detected, in Step 44, it may be transmitted to a claimant via the network 16. In one embodiment, a user inputs the identifier 22 into the address field of a web browser, and Steps 42 and 44 may be attained, when the web browser concerned detected and reads the digital image 14. In another embodiment, the identifier 22 may be provided as

hyperlinks (for example, text hyperlink etc.) which can click (for example, mouse etc.) and can operate them. In that case, when a hyperlink is operated, the digital image 14 is detected via the network 16, and, subsequently may be read.

[0049]The method 12 shown in drawing 2 is only illustration of this invention, and it is understood that limiting the range of this invention is not meant. According to other embodiments, an additional step can be included in the method 12. For example, other various functions 41 take place between the functional phases 32 of the method 12, and these functions may be carried out in automatic, hand control, or its combination according to the composition of the device 10.

[0050]The method 12 may include again that the user 20 provides information, including a domain name, user ID, a password, restriction, etc. For example, the method 12 can include enabling a user further to choose at least a part of identifier 22. The method 12 is provided with the following in one embodiment.

The step which chooses a domain name.

The step which registers the domain name concerned.

Next, the step which changes the domain name concerned into an IP address.

In such an embodiment, at least a part of identifier 22 includes an IP address.

[0051]As another example, the user 20 is made to choose the security level used for a digital image (it is chosen whether password protection of the access to the digital image 14 is carried out). In one embodiment, the method 12 contains the step which prevents further unlawful access to the digital image which was able to assign the functional component 26 and/or the identifier. For example, password protection of the access to the digital image 14 may be carried out so that a user may enter a suitable user name and password first before accessing the digital image 14 concerned. Similarly, a user may be required to enter a suitable user name and password first, before the functional component 26 assigns an identifier to a digital image.

[0052]The method 12 may include further that the user 20 performs function settings. For example, the user 20 can provide one or more e-mail addresses to which the assigned identifier is transmitted automatically.

[0053]As mentioned above, the functional component 26 can reside in other places on [instead of / in the digital imaging device 18] the network 16 permanently. According to such an embodiment, the method 12 can include transmitting the digital image 14 to the functional component 26 from the digital imaging device 18 further. The method 12 can also contain the step which enables the user 18 to throw away again the digital image to which the identifier was assigned. For example, the user 20 accesses the network 16, can delete from the device with which this was stored, and gets the digital image 14.

[0054]Another step which may be contained in the method 12 is referring to the digital image

14 by the object-oriented method via the network 16. When it puts in another way, the method 12 may include further treating as an object rather than only treating the digital image 14 as data. Such object-oriented approach, The support of the "method" (for example, size change of the digital image 14, printing of the digital image 14, rotation of the digital image 14, etc.) which may be used with the digital image 14, The support of the "property" (for example, a file size, an incorporation day, final access, etc.) of the digital image 14 is enabled. For example, the thing for which the method 12 specifies the forms (for example, black and white, a low resolution, the original version, the latest version, a thumbnail image, a file format, etc.) of the digital image 14, And before a user is provided with the digital image 14, it can include formatting the digital image 14 into the specification form concerned. In order to specify form, the method 12 can contain the step which adds an extension to the step and/or the identifier 22 which enable a user further to specify the form of the digital image 14.

[0055]Carrying out tracking of the digital image 14 may also be included in the method 12. For example, the method 12 further, Access information about the digital image 14 (to the information about the number of times that the digital image 14 was accessed, the information about the identity of the user who accessed the digital image 14, and the digital image 14.) It can include holding the record including the information about made change, etc. Supposing this record is held, the method 12 may include accessing this record and acquiring the access information (for example, ***** [that the specific individual perused the digital image 14] etc.) about the digital image 14 further.

[0056]A high-level figure (refer to drawing 3) shows the device 110 of a 2nd embodiment. In the device 110 of this alternative embodiment, the digital imaging device 118 may be related with the network device 119 in operation. It may be linked whether this network device 119 is related with the networks 116 (for example, the Internet, intranet, WAN, LAN, etc.) in operation. the suitable means (for example, a modem, T-1, T-3, a cable, and a digital subscriber line (DSL).) by which the network device 119 is arbitrary Infrared rays, BLUETOOTH (trademark), etc. may be linked to the network 116 via the combination of other devices (for example, a router, a hub, etc.), other networks (for example, LAN, WAN, intranet, etc.), and a network, etc. the network device 119 can be linked to the network 116 -- extensive. [whether it is known for this industry now, and] The system which may be developed in the future (a personal computer, a network server, a kiosk, a handheld computer device, an Internet site, exclusive electronic equipment, Web TV or a TV with Internet functions, a web terminal, an Internet device (that is)) An E-mail, an Internet access, or the device only for [other] a limited function may contain ** someday.

[0057]In the device 110 of a 2nd embodiment, instead of residing permanently in the digital imaging device 118, the functional component 126 can reside permanently in the network device 119, as shown in drawing 3. Or the functional component 126 can reside in other

places (for example, network site 124 grade) on the network 116, the digital imaging device 118, its combination, etc. permanently. However, when the functional component 126 does not reside permanently in the digital imaging device 118, the device 110 does not need to contain the digital imaging device 118. This is because the user 120 can acquire the digital image 114 by other methods of any number. For example, the user 120 via the network 116 from a digital image database (not shown). The digital image 114 is acquirable from other places on [the memory storage 127 which can computer read the network device 119 to] the network (passing an E-mail etc.) 116.

[0058]However, regardless of the acquisition method of the digital image 114 the functional component 126, Various functional modes (for example, assignment of the identifier 122 to the digital image 114, storing of the digital image 114, storing of the identifier 122 to the file in which computer reading is possible, etc.) of this invention can be carried out in the method mentioned above about 1st Embodiment 10, and a similar way.

[0059]It is as follows when the above is summarized. That is, the method 12 concerning one embodiment of this invention contains the step which acquires the digital image 14, and the step which assigns the identifier 22 automatically to the digital image 14 at the digital image 14. The above-mentioned identifier 22 makes it possible to access the digital image 14 via the network 16.

[0060]it is understood that the program code which is indicated in this Description and in which computer reading is possible can be boiled as usual using all of the programming language which is known for this industry now or may be developed in the future and in which extensive suitable computer reading is possible, and it can program. The program code which is indicated in this Description and in which computer reading is possible, One or more functions, a routine, the subfunction (subfunction), and a subroutine can be included, and it does not need to be unified by the single package, instead it is also understood that it may carry out in two or more separate components. The program code in which computer reading is possible may be independent application, or may be the existing application and/or a plug-in module of an operating system. Or the program code in which computer reading is possible may be united with application or an operating system. In another embodiment, the program code in which computer reading is possible can reside in one or more network devices (not shown), such as an administrator terminal and a server, permanently.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention]This invention relates to the method and device for identifying a digital image via a network and accessing the picture in more detail, about a digital image, comprehensively.

[Translation done.]

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PRIOR ART

[Description of the Prior Art]The Internet developed into the medium used widely, in order to communicate and share the others, information, and visual images. Comparatively cheap digital imaging devices, such as a digital camera and a scanner, actually made it convenient to share a picture via the Internet increasingly. For example, what is necessary is just to transmit the E-mail which attached the digital photograph concerned to the E-mail first, and then attached the digital image concerned to a friend or a relative, in order for new parents to share their digital photograph or picture of a newborn child with a friend or a relative. The addressee (there may be plurality) can see the newborn child's digital image, if an E-mail is received. Or by putting the above-mentioned digital image on the Internet web page, new parents can make it possible to see a photograph, when a family and a friend visit the Internet web page concerned.

[0003]Although the ease which can share a digital image via the Internet raised the popularity of the digital imaging device clearly, a problem is not necessarily in sharing of the digital image through the Internet. For example, depending on the kind of file in which the resolution of a digital image and this were stored, the file size of a digital image may become very large. Such a big file can pose a problem, when sending to a certain kind of e-mail account. It is because many E-mail service providers have restricted the size of the e-mail account to provide (for example, account of Hotmail (hotmail) is restricted to 2 megabytes). As a result, the E-mail with which one or more digital images were attached may exceed restriction (there may be plurality) of the account size of an e-mail account (it may be plural) that this is transmitted. When restriction of e-mail account size is exceeded depending on the specific E-mail service provider used, there is a possibility that an addressee's e-mail account (namely, "crash"), and operating may become impossible.

[0004]The file size accompanying a digital image may need to spend considerable time and throughput again, in order to share a digital image via the Internet. For example, in order to

share a digital image via an E-mail, a user has to attach a digital image to the E-mail concerned first, before transmitting an E-mail. In order to share a digital image via the Internet web page, first, a user puts the digital image which it is going to share on the Internet web page, namely, has to upload it. Both the process of attaching a digital image to an E-mail, and the process of uploading a digital image to the Internet web page may require time. In which approach, after a user incorporates a digital image with a digital imaging device, a digital image cannot be shared comparatively immediately.

[0005]The option which shares a digital image via the Internet is uploading a digital image to the "digital photograph album" in which control of maintenance is carried out by one of various Internet services.

As for this, a user makes possible storing and the things (for example, an inspection, edit, a share, etc.) to manage for his digital image in a digital photograph album.

Each Internet Service Provider usually provides the device original with the digital photograph album of his company.

Although the sharing method of the accessing method to a digital photograph album, the contents of the digital photograph album, and the digital image in a digital photograph album, etc. are mentioned to this, it is not limited to these.

However, the functionality of such a digital photograph album is greatly spoiled by lack of unity (uniformity). For example, a user spends considerable time and labor first, before getting access eventually to the digital image accommodated in the digital photograph album, It is required for the functions (for example, an inspection, printing, edit, etc.) of a digital photograph album in which the digital image is stored to get used and to be familiar, and it obtains.

[Translation done.]

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]Then, the purpose of this invention identifies a digital image via a network, and there is in providing the method and device for accessing the picture.

[Translation done.]

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MEANS

[Means for Solving the Problem]A method by one embodiment of this invention is indicated here. This method is provided with the following.

A step which acquires a digital image.

A step which assigns an identifier automatically to the digital image concerned.

This identifier makes it possible to access the above-mentioned digital image via a network.

[0008]

[Embodiment of the Invention]The illustration embodiment of this invention is shown in attached Drawings.

[0009]In this Description, the digital image 14 is identified via the network 16, and the device 10 and the method 12 of using in order to access the picture (for example, record storage, storing, discernment, edit, a share, tracking (pursuit), etc.) are shown and explained. The device 10 is shown in drawing 1 and the method 12 is shown in drawing 2. If it says simply, this invention includes acquiring the digital image 14 and assigning the identifier 22 automatically to the above-mentioned digital image 14 so that the next can be accessed via the network 16 at the above-mentioned digital image 14 comprehensively.

[0010]One advantage realizable by one embodiment of this invention, It is that the user 20 can share the digital image 14 with the others (for example, third party user 24 grade) comparatively immediately, for example after acquiring the digital image 14 with the digital imaging devices (digital image capture device) (for example, a digital camera, a scanner, etc.) 18. More specifically, the functional component 26 of the device 10 can assign the identifier 22 comparatively immediately to the digital image 14, after acquiring the digital image 14 with the digital imaging device 18. In this case, in order to share the digital image 14, The user 20 should just only share the identifiers 22 (for example, URI, URL, etc.) with the third party user 24, Then, the third party user 24 can access the digital image 14 using the identifier (the device with which the digital image 14 is stored assuming that it is what is linked to the network

16) 22. The device with which the digital image 14 was actually stored as for the identifier 22. From (for example, the network device 19 and digital imaging device 18 grade). For example, although the user 20 is not performing the process that the time of uploading or transmitting the digital image 14 to the Internet web page, a digital photograph album, or an E-mail starts, The digital image 14 is shared with the third party user 24 via the network 16, or the third party user 24 is enabled to access the digital image 14. For example, the film development contractor (Internet film developer) on the Internet, Via the network 16 using the identifier 22 (for example, in order to develop and print the digital image 14 etc.) the digital image 14, It can acquire directly from the device with which the digital image 14 concerned was stored, and the necessity that the user 20 uploads the digital image 14 to the website of the film development contractor on the Internet by this can be abolished.

[0011]When how to assign an identifier is known (namely, when the user 20 concerned knows beforehand which identifier will be assigned to the user's 20 digital image), The user 20 can provide the third party user 24 with the identifier concerned, before a digital image is acquired thoroughly. By doing so, it enables the third party user 24 to peruse the digital image to which the above-mentioned (the device with which the digital image is maintained assuming that it is what is linked to the network 16) identifier 22 was assigned in "real time." For example, the third party user 24 can peruse the digital image which the user 20 acquired on the day, and gets every night on it.

[0012]The arbitrary servers (web server etc.) linked to the network 16 have another advantage realizable by one embodiment of this invention in the ability to carry out the "host" (for example, detection (find), read-out (retrieve), a display, etc.) of the digital image 14. If it puts in another way, various time can be accessed from various places via the network 16 by giving a suitable demand to the digital image 14 using the network device linked to the network 16. By storing various identifiers assigned to the user's digital image in the files (simple text file based on markup languages, such as HTML, XML, or SGML, etc.) in which computer reading is possible, The file in which computer reading is possible can refer a user's digital image collection, or it can be linked from the file in which computer reading is possible. The identifier stored in the file and this in which computer reading is possible is sharable with the others after that, and provides how a user shares his digital image collection easy. Since the file in which computer reading is possible stores not the digital image itself but an identifier, it is comparatively small and it becomes easier to treat it than the file containing the digital image itself.

[0013]Advantage realizable by one embodiment of this invention, and also another, It is in making it possible to access the individual according to independence from other digital images which reside permanently on the network 16 at each of those digital images by assigning an identifier to each digital image which resides permanently on the network 16. For

example, the user cannot access other digital images which were incorporated with the same digital imaging device 18 and which the functional component 26 assigned the identifier, but can also access ** individually via the network 16 at the digital image 14.

[0014]Assignment of the identifier to a digital image also makes tracking of a digital image possible. For example, access information about the digital image 14 (in access, the digital image 14.) (For example, an inspection, a copy, printing, etc.) The record including the information about the number of times carried out, the information about the identity of the user who accessed the digital image 14, the information about change made to the digital image 14, etc. can be held. By accessing this record, the user 20 can judge about whether the specific individual for example especially perused the digital image 14.

[0015]Advantage another again realizable by one embodiment of this invention and also By assigning the uniform resource identifier ("URI") to a digital image using the Internet protocol versions 6 ("IPv6"), it is in making it possible only and to suppose that it is eternal about IPv6 URI assigned to a digital image. For example, in one embodiment, URI can be saved, as long as the digital image concerned continues or exists. That is, while the digital image concerned exists, IPv6 URI assigned to the digital image at the beginning is not changed, or is not assigned to other arbitrary digital images. It can even actually perform saving eternally URI assigned to a digital image and this as the cost accompanying storing of data continues decreasing. Anyway, arrangement and a share of a digital image can only pose a problem of markup languages, such as HTML, XML, or SGML, by giving permanent (permanent-by-photo) IPv6 URI to each digital image for every photograph.

[0016]One embodiment of this invention can also enable realization of a capital gain or a money profit (proprietary or monetary gains). For example, commercial service can collect a fee and can store a user's digital image.

[0017]There is further advantage realizable by one embodiment of this invention in making it possible to refer to a digital image by the object-oriented method via a network. That is, by treating as an object rather than treating a digital image as mere data, The support of the "method" (for example, size change of the digital image 14, printing of the digital image 14, rotation of the digital image 14, etc.) which may be used with the digital image 14, And the support of the "property" (for example, a file size, an incorporation day, final access, etc.) of the digital image 14 is enabled. For example, a user is enabled to specify the forms (for example, black and white, a low resolution, high resolution, the original version, a thumbnail indication, the latest version, etc.) of the digital image 14, The program code which formats the digital image 14 into the specification form concerned so that a user may be eventually provided with the digital image 14 in this specification form and in which computer reading is possible can be provided.

[0018]Since a part of the device 10 by one embodiment of this invention, method 12, its more

important feature, and advantage were explained briefly, below, various embodiments of the device 10 and the method 12 are indicated more in details.

[0019]Drawing 1 identifies the digital image 14 via the network 16, and the picture is accessed. (For example, record storage, storing, discernment, edit, a share, tracking, etc.) In order to carry out, it is a high-level figure (high level diagram) showing the component of one embodiment of the device 10 which can be used. Although being used on the Internet is preferred as for this invention, it is understood that this invention is not strictly restricted to use on the Internet. That is, although it is preferred that they are a data link control protocol / Internet Protocol (TCP/IP) network as for the network 16, Although a Local Area Network (LAN), a Wide Area Network (WAN), a secure network, intranet, the Internet, its combination, etc. are included, they may be the arbitrary suitable networks (singular number or plurality) which are not limited to these.

[0020]The device 10 can be provided with the digital imaging device 18 which can be used in order that the user 20 may incorporate the digital image 14. the extensive digital imaging device (digital image capture device) which the digital imaging device 18 is known for this industry now, or may be developed in the future -- ** may be included someday. For example, the digital imaging device 18 may contain a digital camera or a scanner.

[0021]In the embodiment shown and described into this Description, it is linked whether the digital imaging device 18 is related with the network 16 in operation by the network device 19. the network device 19 can be linked to the network 16 -- extensive. the system (a personal computer, a network server, a kiosk, a handheld computer device, an Internet site, and exclusive electronic equipment (e-enabled appliance).) which is known for this industry now or may be developed in the future Web TV or a TV with Internet functions, a web terminal, an Internet device (namely, an E-mail, an Internet access, or the device only for [other] a limited function), etc. may contain ** someday. the suitable means (for example, a modem, T-1, T-3, a cable, and a digital subscriber line (DSL).) by which the network device 19 is arbitrary It may be linked whether it is related with the network 16 in operation via the combination of other devices (for example, a router, a hub, etc.), such as infrared rays and BLUETOOTH (trademark), other networks (for example, LAN, WAN, intranet, etc.), and a network, etc.

[0022]However, the digital imaging device 18 should care about that it does not need to be linked to the network 16 by the network device 19. Instead, the digital imaging device 18, it is linked directly (namely, -- having no relay device (not shown) between the digital imaging device 18 and the network 16), or may be linked to the network 16 via one or more relay devices (personal computer etc.) at the network 16. The digital imaging devices 18 are actually wired connection, infrared connection, and a dialup connection (.). that is, a modem is used -- permanent connection (for example, a cable and a digital subscriber line (DSL).) Other arbitrary suitable means which are not limited to these although T-1 and T-3 are included, It

may be linked to the network 16 via the combination of BLUETOOTH (trademark), a satellite and also other devices (for example, a router, a hub, etc.), other networks (for example, LAN, WAN, intranet, the Internet, etc.), and a network, etc.

[0023]There is never no necessity that the digital imaging device 118 is linked to the network 116 in the device 110 (refer to drawing 3) of an alternative embodiment explained still in detail below. Instead, the digital image 114 may be downloaded or transmitted to the network devices 119 (for example, personal computer etc.) from the digital imaging device 118. This network device 119 does not have to be carried out even if it is linked to the network 116, or when the digital image 114 is acquired by this, and it is transmitted. However, in order to access the digital image 114 via the network 116, the network device 119 with which the digital image 114 is transmitted must be linked to the network 116. When similarly it is stored in the digital imaging device 118, without transmitting the digital image 14, in order to access the digital image 14 via the network 16, the digital imaging device 18 must be linked to the network 16 (refer to drawing 1).

[0024]In order to carry out various functional modes of this invention, the device 10 can be further provided with the functional component 26. It is understood that the arbitrary suitable hardwares and/or software applications which perform each function can be used for the functional component 26. In one embodiment, the functional component 26 may contain the program code in which computer reading is possible, and hardwares (for example, Intel PENTIUM (registered trademark) processor etc.) required in order to perform this. The program code in which such computer reading is possible, The program code which enables it to access each digital image via the network 16 separately from other digital images which assigned the identifier by assigning the identifier of a meaning (only) to a digital image may be included. For example, the identifier 22 assigned to the digital image 14 can be used with a web browser, and the digital image 14 can be accessed via the network 16.

[0025]The program code which can constitute the functional component 26 and in which computer reading is possible is storable in the storage with which it was associated whether it resides in the digital imaging device 18 permanently and in which one or more computer reading is possible. Or the program code which constitutes a functional component and in which computer reading is possible, Other places on the network device 119 (refer to drawing 3), the primary server 37, the secondary server 39, and the network 16. It is storable in the storage with which it was associated whether it resides in (for example, another server) etc. or some of its combination permanently and in which one or more computer reading is possible. However, the program code in which computer reading is possible may contain the program code for performing one or more of the various steps of the method 12 shown in drawing 2 regardless of the permanent residence place.

[0026]In the embodiment shown and described into this Description, after the digital imaging

device 18 incorporates the digital image 14, namely, acquires the functional component 26, it can assign the identifier 22 immediately automatically mostly at the digital image 14 (with namely, those without user intervention). In the device 110 (refer to drawing 3) of an alternative embodiment explained more below at details. It can avoid assigning the identifier 122 until the digital image 114 transmits or downloads from the digital imaging device 118 to the network device 119, for example because the functional component 126 resides permanently in the network device 119. In another alternative embodiment (not shown). The functional component does not need to assign the identifier 22 to the digital image 14 until the digital image 14 is transmitted to the network position (it may be plural) in which it resides in other places on the network 16 permanently, and this functional component resides permanently via the network 16.

[0027]The identifier 22 assigned to the digital image 14 can contain the identifiers (a uniform resource identifier ("URI"), a uniform resource locator ("URL"), etc.) of an eternal (that is, un-dynamic) meaning. globally, it is eternal, and URI identifies only the digital image 14 on the network 16 clearly, and URI assigned to the digital image 14 is fixed [a meaning and] (that is, it does not change) -- it can be made like. If it has another way of speaking, the identifier 22 assigned to the digital image 14 is only all over the world, and it is preferred to have the identifier as the identifier 22 in which other digital images of which, device, file, etc. of the duration of the digital image 14 are the same. During the duration of the digital image 14, the identifier 22 does not change, while it had been fixed. The identifier 22 of a meaning (only) is eternally assigned to the digital image 14, and it can actually assign another digital image, a device, and a file never.

[0028]For example, in one embodiment, a web browser can detect the resource related with the URL concerned using this URL including URL, and, therefore, the identifier 22 can read the digital image 14. More specifically, URL can specify the protocols (for example, http, ftp, etc.) used when accessing the digital image 14, the server in which the digital image 14 resides permanently or the name of other devices, and the course to the digital image 14. According to specific application, a user inputs URL into the address field of a web browser, or a user can become ** as which URL is displayed as a hyperlink which can operate by click. Anyway, URL or other identifiers which are assigned to the digital image 14 enable it to access the digital image 14 via the network 16.

[0029]In order to assign an identifier to a digital image, the Internet protocol versions 6 ("IPv6") can be used for the functional component 26. If it says simply, IPv6 will be a next-generation protocol proposal of the Internet developed in order to solve shortage of the available IP address accompanying the Internet protocol versions 4 ("IPv4") used for one now. In IPv4, in order to identify uniquely the hosts (for example, computer etc.) connected to the Internet to other Internet hosts for the purpose of [by packet transfer] communication, a 32 bits (4 bytes)

binary number is used. The IPv four address is expressed in the "quad with dot (dotted quad)" form (for example, 127.0.0.1st grade) which consists of a decimal value of 4 bytes divided by the period. Identifying 1 of the beginning of the IPv four address, 2, or 3 bytes of network to which the host is connected, the remaining bits identify the host itself. If all the 4 bytes 32 bits are doubled, about 2^{32} , i.e., about 4 billion host, can be expressed (some small ranges in a number group are not used). However, available IP addresses are insufficient by IPv4 with the spread of the Internet. The dynamic host composition protocol ("DHCP") is used with IPv4. When a host connects with a network, the network linked to the Internet makes it possible to assign the host concerned a temporary IP address automatically, and makes it possible to carry out the reuse of the IP address therefore, but. A chance of replacing IPv4 in the future when IPv6 is near still in addition is high. In contrast with IPv4, IPv6 makes it possible to express an address numerically as 6 sets instead of 4 sets of numbers. As a result, IPv6 increases 128 bits from 32 bits, and equips the network and system of an infinite number with an address space as a matter of fact (related with all the intention and purpose).

[0030]When using IPv6, the functional component 26 can assign an identifier including a perfect physical IP address (namely, 6 sets of numbers showing an address), or name addresses (for example, www.hp.com etc.) to a digital image. Or using the version after IPv6 can also assign the identifier of other types to a digital image so that clearly [the person skilled in the art who understood instruction of this invention well].

[0031]The identifier assigned to a digital image can be selectively based on the information which the user 20 provided at least. The identifier assigned to a digital image by doing so can explain that "meaningful", i.e., a specific digital image. For example, the user 20 can choose domain names (for example, "douglasgennettenscamera1.com" etc.), and, subsequently to either of various domain name registration services, can register the domain name concerned. once a domain name is registered -- the domain name server or registration computer of the service -- temporary -- parking -- that is, it may be stored. The domain name concerned may be eventually changed into the Internet protocol address which identifies uniquely the host in whom it is the communication purpose and the user's 20 digital image will reside permanently to other Internet hosts. After all, at least a part of identifier assigned to each of the user's 20 digital image can include an Internet protocol address. For example, the identifier "douglasgennettenscamera1.com/digitalimage14" is assigned to the digital image 14, Then, an identifier can be assigned to the digital image following this in order (for example, "douglasgennettenscamera1.com/digitalimage15" etc.).

[0032]In another embodiment, assignment of an identifier can be selectively based on the digital imaging device 18 used in order to incorporate a digital image. For example, the digital imaging device 18 is related with the network 16 in operation, and may have an eternal physical IP address. In that case, at least a part can assign an identifier including the IP

address of the digital imaging device 18 concerned to the digital image incorporated with this digital imaging device 18.

[0033]the IP address of the digital imaging device 18 -- or the part at least can contain the social security number of the serial number of the digital imaging device 18 concerned, or the user 20, i.e., a buyer, for example. Or for example, at least a part of IP address of the digital imaging device 18 can be based on the information which the user 20 provided. According to one embodiment, the user 20 can choose domain names (for example, "andygoriscamera1.com" etc.), and, subsequently to either of various domain name registration services, can register the domain name concerned. Selection and registration of a domain name can be performed by including the expense accompanying registration of a domain name in the purchase price at the time of the purchase of the digital imaging device 18. once a domain name is registered -- the domain name server or registration computer of the service -- temporary -- parking -- that is, it may be stored. The domain name concerned may be eventually changed into the Internet protocol address which identifies the above-mentioned digital imaging device 18 uniquely. After all, at least a part of identifier assigned to each of the user's 20 digital image can include the Internet protocol address of the above-mentioned digital imaging device 18. For example, the identifier "andygoriscamera1.com/digitalimage14" is assigned to the digital image 14. Then, an identifier can be assigned to the digital image following this in order (for example, to a next digital image.). An identifier "andygoriscamera1.com/digitalimage15", "andygoriscamera1.com/digitalimage16", etc. can be assigned.

[0034]As mentioned above, the digital image which assigned the identifier by this invention may be maintained namely, stored via the network 16 so that it may be accessible. In one embodiment, the functional component 26 may contain further the program code which stores the above-mentioned digital image in the medium which is accommodated in the memory storage which was linked to the network 16, and in which one or more computer reading is possible, and in which one or more computer reading is possible. A digital image is storable in automatic (with namely, those without user intervention), hand control, or its combination. Preferably, the memory storage in which one or more above-mentioned computer reading is possible is linked to the network 16 always or eternally. Otherwise, when the device (it may be plural) with which the digital image was stored is not linked to the network 16, access to a digital image of a user may become impossible. However, the identifier 22 should care about that it may be used in order that the digital image 14 may access the digital image 14 via the network 16 regardless of the place stored namely, maintained eventually. For example, even if the digital image 14 is transmitted to the digital image 14 from the network position to which the identifier 22 was assigned, the identifier 22 may still be used in order to access the digital image 14 via the network 16.

[0035]In the embodiment shown and described into this Description, since a digital image is stored, a network or the Internet website 28 can be used. More specifically, the network site 28 may contain, the 1st server 37, i.e., a primary server, and the secondary server 39, i.e., a backup server. Or the network site concerned may contain servers (a partition server, a non-partition server, its combination, etc.) with preferred any number (namely, one or more).

[0036]The primary server 37 may contain the file server which may store or record keep two or more digital images containing the digital image 14. The primary server 37 can transmit the digital image 14 concerned, if a user (for example, the user 20, third party user 24 grade) advances the suitable demand which asks for the digital image 14. Or a digital image is storable in other places on the network site 28, other place (for example, network device 19 grade) on the network 16, its combination, etc.

[0037]When it returns to drawing 1, the secondary server 39 may contain the file server used since the backup copy of a digital image is stored. For example, since the backup copy of the digital image 14 of an original copy, i.e., an unedited version, is stored, the secondary server 39 may be used. Or the backup copy of a digital image is storable in other places on the network site 28, other place (for example, network device 19 grade) on the network 16, its combination, etc.

[0038]This is not indispensable although being stored in read-only form is usually preferred as for each of the digital image of an original copy, i.e., an unedited version. Similarly, the backup copy of a digital image may also be stored in read-only form. However, when the original version and/or backup copy of a digital image are stored in read-only form. A user accesses the original version and/or backup copy of a digital image, The override functions (for example, password override etc.) which make it possible to carry out override (override) of the read-only form so that this can be corrected can be provided.

[0039]In order to save memory space, the digital image can store only limited time or a prescribed period. The period when each digital image is stored is specified by the user 20, or may be determined without user intervention, for example (for example, set up a priori in programmable code). As mere illustration, by one embodiment, the digital image 14 may be deleted, when access to the digital image 14 concerned is not required or charged more than five years. Or as mentioned above, someone cannot be concerned [access trial or] with whether it accessed or not, but can store the digital image 14 in the digital image 14 concerned eternally.

[0040]In addition to storing, i.e., maintenance, of a digital image, various identifiers assigned to a digital image can also be stored namely, maintained. For example, this identifier 22 after the functional component 26 assigns the identifier 22 to the digital image 14, the file (HyperText Markup Language ("HTML").) in which computer reading is possible It may be stored namely, saved at the text file based on an extensible markup language ("XML") or markup languages,

such as a standard generalized markup language ("SGML"), etc. (arrangement). The file in which computer reading is possible is storable in the medium which is accommodated in the memory storage which was linked to the network 16, and in which one or more computer reading is possible and in which one or more computer reading is possible. For example, the file in which computer reading is possible is storable in the memory storage 27 which can computer read the network device 19, and the primary server 37 of the network site 28, and/or the secondary server 39. Or the file in which computer reading is possible is storable in other places on the network site 28, other place on the network 16, its combination, etc.

[0041]The file in which computer reading is possible can also contain the identifier assigned to other digital images other than the identifier 22 of the digital image 14. By storing two or more identifiers in the file in which computer reading is possible, the digital image related with the identifier concerned is easily sharable by sharing the file in which the computer reading concerned is possible, and the identifier stored in this. It is because this has the comparatively small file in which computer reading is especially possible. It is actually easier to treat the file containing an identifier and in which computer reading is possible small far than the file containing the digital image itself. However, the method of accessing a digital image eventually should care about/or the file in which computer reading is possible being transmitted how, and being decided by whether it is received. For example, a digital image can be displayed on a display (not shown) as a thumbnail image, a full-size picture, etc., and can provide/or an identifier as a series of hyperlinks.

[0042]The functional component 26 may contain again the program code which refers to the digital image 14 via the network 16 by the object-oriented method (design fashion), i.e., an object oriented design form. If it puts in another way, the digital image 14 cannot be treated as data which only constitutes the digital image 14, but the functional component 26 can treat it as an object. Such object-oriented approach, The support of the "method" (for example, size change of the digital image 14, printing of the digital image 14, rotation of the digital image 14, etc.) which may be used with the digital image 14, The support of the "property" (for example, a file size, an incorporation day, final access, etc.) of the digital image 14 is enabled.

[0043]In one embodiment, the functional component 26, The program code which specifies the forms (for example, black and white, a low resolution, the original version, the latest version, a thumbnail image, a file format, etc.) of the digital image 14, The program code which formats the digital image 14 into the specification form concerned so that a user may be eventually provided with the digital image 14 in this specification form may be included. For example, the functional component 26 can recognize that the film development contractor on a printer or the Internet performed the access request to the digital image 14, Therefore, high resolution form is specified as the digital image 14, and next, according to this, the digital image 14 can be formatted, before the digital image 14 concerned is provided to the film development contractor

on the printer which performed the access request, or the Internet.

[0044]The functional component 26 may contain the program code which enables a user to specify the form of the digital image 14 again. for example, a user -- the identifier 22 -- an extension (the case of a black and white version -- ".BW".) In the case of high resolution, it is possible to specify the form of the digital image 14 by adding ".bmp" etc. in the case of ".jpg" and bitmap file form in the case of ".HR" and a jpg file format, and it obtains to it. In one embodiment, the user can input the identifier 22 and the extension following this into the address field of a web browser. In another embodiment, the user can specify the form of the digital image 14 by choosing in the pull down menu of a web browser. Or other methods of specifying form are possible so that clearly [the person skilled in the art who understood instruction of this invention well].

[0045]The functional component 26 can contain further the program code which carries out tracking of the digital image 14. For example, The record including the access information (the information about the number of times that the digital image 14 was accessed, information about the identity of the user who accessed the digital image 14, information about change made to the digital image 14, etc.) about the digital image 14 can be held. By accessing this record, the user 20 can judge whether the specific individual for example especially perused the digital image 14.

[0046]It is understood that the embodiment of drawing 1 is only illustration of the environment where this invention may be carried out. Other embodiments (for example, device 110 of the embodiment of drawing 3) are meant as what is within the limits of this invention. For example, the functional component 26 resides in other places permanently, and may be divided into/or a separate module, a routine, and/or a subroutine.

[0047]The device 10 assigns the identifier 22 to the digital image 14 in accordance with the method 12 shown in drawing 2, and it may be operated so that it may make it possible to access the digital image 14 via the network 16. The digital image 14 is acquired in the 1st step 30 of the method 12. In order to acquire the digital image 14, the user 20 can use the digital imaging device 18, for example. Or the digital image 14 may be read from other places on the network 16 (passing an E-mail etc.). The following step 32 contains various functional modes (feature) of this invention in the method from which the digital image 14 is acquired not related. In Step 32, more specifically, the digital image 14 may be stored so that it may become accessible via the network 16 (refer to Step 36). For example, the digital image 14 may be stored in other place on the 1st server 37 of the digital imaging device 18, the network device 19, and the network site 28 and/or the 2nd server 39, and the network 16, its combination, etc. Between the functional phases (functional phase) 32 of the method 12, the identifier 22 which may be used in order to access the digital image 14 concerned via the network 16 may be assigned to the digital image 14 (refer to Step 38). More specifically, the identifier 22 can

provide the position or site on the networks (for example, detection, read-out, edit, a display, printing, a share, tracking, etc.) 16 which can access the digital image 14. After the digital image 14 is stored the identifier 22, while it is stored, it may be assigned to the digital image 14 even at a saying, before being stored early stage. However, if the identifier 22 will be assigned, it may be stored in the files (text file based on markup languages, such as HTML, XML, or SGML, etc.) in which computer reading is possible (refer to Step 40). Other various functions 41 may take place between the functional phases 32 of the method 12 so that it may explain still in detail below.

[0048]In Step 42 if it assumes that a user (for example, the user 20, third party user 24 grade) wants to access the digital image 14 here, the identifier 22 assigned to the digital image 14, It may be used in order to detect the digital image 14 on the network 16 (a position is found). Once the digital image 14 is detected, in Step 44, it may be transmitted to a claimant via the network 16. In one embodiment, a user inputs the identifier 22 into the address field of a web browser, and Steps 42 and 44 may be attained, when the web browser concerned detected and reads the digital image 14. In another embodiment, the identifier 22 may be provided as hyperlinks (for example, text hyperlink etc.) which can click (for example, mouse etc.) and can operate them. In that case, when a hyperlink is operated, the digital image 14 is detected via the network 16, and, subsequently may be read.

[0049]The method 12 shown in drawing 2 is only illustration of this invention, and it is understood that limiting the range of this invention is not meant. According to other embodiments, an additional step can be included in the method 12. For example, other various functions 41 take place between the functional phases 32 of the method 12, and these functions may be carried out in automatic, hand control, or its combination according to the composition of the device 10.

[0050]The method 12 may include again that the user 20 provides information, including a domain name, user ID, a password, restriction, etc. For example, the method 12 can include enabling a user further to choose at least a part of identifier 22. The method 12 is provided with the following in one embodiment.

The step which chooses a domain name.

The step which registers the domain name concerned.

Next, the step which changes the domain name concerned into an IP address.

In such an embodiment, at least a part of identifier 22 includes an IP address.

[0051]As another example, the user 20 is made to choose the security level used for a digital image (it is chosen whether password protection of the access to the digital image 14 is carried out). In one embodiment, the method 12 contains the step which prevents further unlawful access to the digital image which was able to assign the functional component 26 and/or the identifier. For example, password protection of the access to the digital image 14 may be

carried out so that a user may enter a suitable user name and password first before accessing the digital image 14 concerned. Similarly, a user may be required to enter a suitable user name and password first, before the functional component 26 assigns an identifier to a digital image.

[0052]The method 12 may include further that the user 20 performs function settings. For example, the user 20 can provide one or more e-mail addresses to which the assigned identifier is transmitted automatically.

[0053]As mentioned above, the functional component 26 can reside in other places on [instead of / in the digital imaging device 18] the network 16 permanently. According to such an embodiment, the method 12 can include transmitting the digital image 14 to the functional component 26 from the digital imaging device 18 further. The method 12 can also contain the step which enables the user 18 to throw away again the digital image to which the identifier was assigned. For example, the user 20 accesses the network 16, can delete from the device with which this was stored, and gets the digital image 14.

[0054]Another step which may be contained in the method 12 is referring to the digital image 14 by the object-oriented method via the network 16. When it puts in another way, the method 12 may include further treating as an object rather than only treating the digital image 14 as data. Such object-oriented approach, The support of the "method" (for example, size change of the digital image 14, printing of the digital image 14, rotation of the digital image 14, etc.) which may be used with the digital image 14, The support of the "property" (for example, a file size, an incorporation day, final access, etc.) of the digital image 14 is enabled. For example, the thing for which the method 12 specifies the forms (for example, black and white, a low resolution, the original version, the latest version, a thumbnail image, a file format, etc.) of the digital image 14, And before a user is provided with the digital image 14, it can include formatting the digital image 14 into the specification form concerned. In order to specify form, the method 12 can contain the step which adds an extension to the step and/or the identifier 22 which enable a user further to specify the form of the digital image 14.

[0055]Carrying out tracking of the digital image 14 may also be included in the method 12. For example, the method 12 further, Access information about the digital image 14 (to the information about the number of times that the digital image 14 was accessed, the information about the identity of the user who accessed the digital image 14, and the digital image 14.) It can include holding the record including the information about made change, etc. Supposing this record is held, the method 12 may include accessing this record and acquiring the access information (for example, ***** [that the specific individual perused the digital image 14] etc.) about the digital image 14 further.

[0056]A high-level figure (refer to drawing 3) shows the device 110 of a 2nd embodiment. In the device 110 of this alternative embodiment, the digital imaging device 118 may be related

with the network device 119 in operation. It may be linked whether this network device 119 is related with the networks 116 (for example, the Internet, intranet, WAN, LAN, etc.) in operation. the suitable means (for example, a modem, T-1, T-3, a cable, and a digital subscriber line (DSL).) by which the network device 119 is arbitrary Infrared rays, BLUETOOTH (trademark), etc. may be linked to the network 116 via the combination of other devices (for example, a router, a hub, etc.), other networks (for example, LAN, WAN, intranet, etc.), and a network, etc. the network device 119 can be linked to the network 116 -- extensive. . [whether it is known for this industry now, and] The system which may be developed in the future (a personal computer, a network server, a kiosk, a handheld computer device, an Internet site, exclusive electronic equipment, Web TV or a TV with Internet functions, a web terminal, an Internet device (that is)) An E-mail, an Internet access, or the device only for [other] a limited function may contain ** someday.

[0057]In the device 110 of a 2nd embodiment, instead of residing permanently in the digital imaging device 118, the functional component 126 can reside permanently in the network device 119, as shown in drawing 3. Or the functional component 126 can reside in other places (for example, network site 124 grade) on the network 116, the digital imaging device 118, its combination, etc. permanently. However, when the functional component 126 does not reside permanently in the digital imaging device 118, the device 110 does not need to contain the digital imaging device 118. This is because the user 120 can acquire the digital image 114 by other methods of any number. For example, the user 120 via the network 116 from a digital image database (not shown). The digital image 114 is acquirable from other places on [the memory storage 127 which can computer read the network device 119 to] the network (passing an E-mail etc.) 116.

[0058]However, regardless of the acquisition method of the digital image 114 the functional component 126, Various functional modes (for example, assignment of the identifier 122 to the digital image 114, storing of the digital image 114, storing of the identifier 122 to the file in which computer reading is possible, etc.) of this invention can be carried out in the method mentioned above about 1st Embodiment 10, and a similar way.

[0059]It is as follows when the above is summarized. That is, the method 12 concerning one embodiment of this invention contains the step which acquires the digital image 14, and the step which assigns the identifier 22 automatically to the digital image 14 at the digital image 14. The above-mentioned identifier 22 makes it possible to access the digital image 14 via the network 16.

[0060]it is understood that the program code which is indicated in this Description and in which computer reading is possible can be boiled as usual using all of the programming language which is known for this industry now or may be developed in the future and in which extensive suitable computer reading is possible, and it can program. The program code which is

indicated in this Description and in which computer reading is possible, One or more functions, a routine, the subfunction (subfunction), and a subroutine can be included, and it does not need to be unified by the single package, instead it is also understood that it may carry out in two or more separate components. The program code in which computer reading is possible may be independent application, or may be the existing application and/or a plug-in module of an operating system. Or the program code in which computer reading is possible may be united with application or an operating system. In another embodiment, the program code in which computer reading is possible can reside in one or more network devices (not shown), such as an administrator terminal and a server, permanently.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a high-level figure showing the component of one embodiment of the system for identifying a digital image via a network and accessing the picture.

[Drawing 2]It is a flow chart which shows one embodiment of the method of using in the system for identifying a digital image via a network and accessing the picture shown in drawing 1.

[Drawing 3]It is a high-level figure showing the component of a 2nd embodiment of the system for identifying a digital image via a network and accessing the picture.

[Description of Notations]

10,110 Device

14 Digital image

16,116 Network

18,118 Digital imaging device

19,119 Network device

20,120 User

24,124 Third party user

28,128 Network site

[Translation done.]

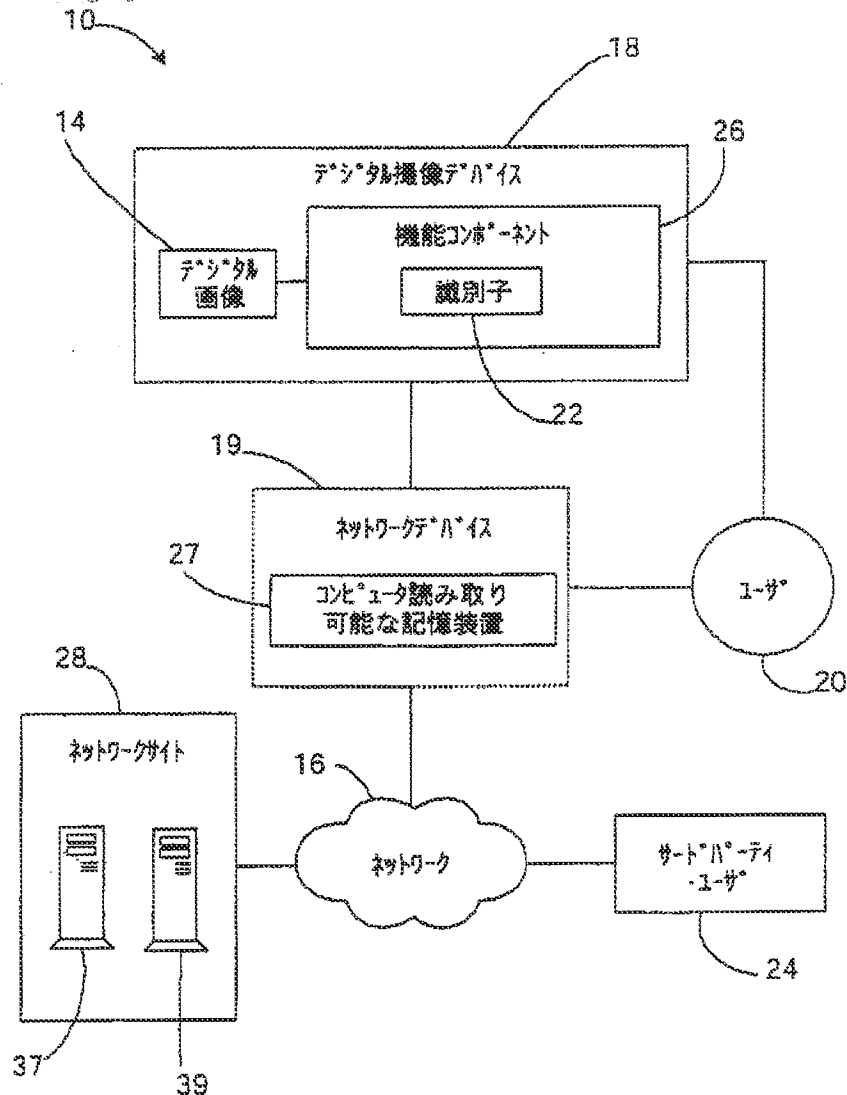
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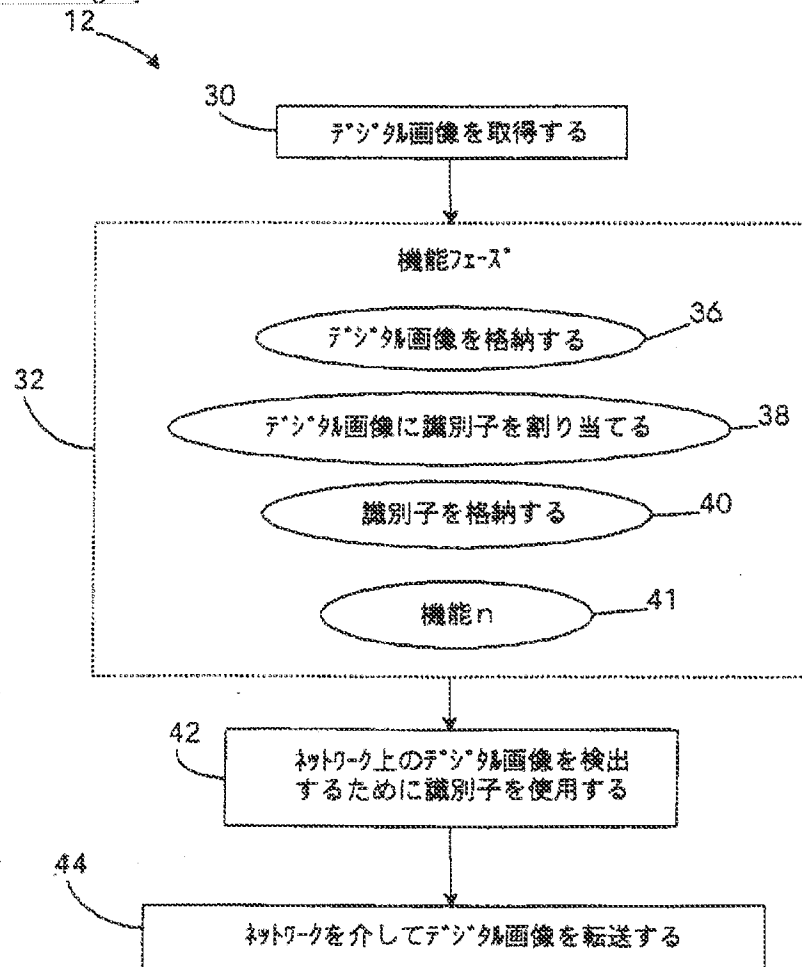
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DRAWINGS

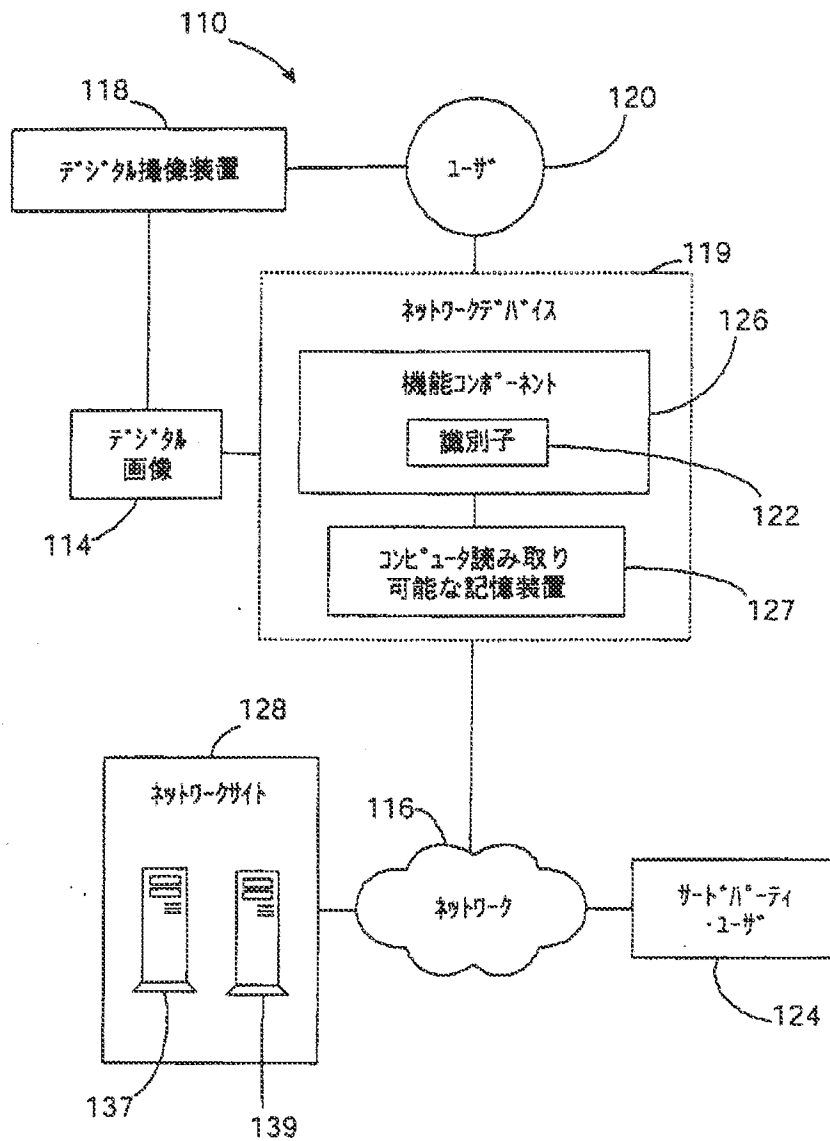
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]